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COLLOPS BIPUNCTATUS AS AN ENEMY OF THE COLORADO POTATO BEETLE.

C. E. MEAD.

ON July 20, while searching the potato vines at Aztec, New Mexico, for insect pests, a beetle, *Collops bipunctatus*, was noticed eating a larva of the Colorado potato beetle. The beetle was carefully watched for about half an hour, and with the aid of a pocket lens I could plainly see that fully one-half of the larva had been destroyed and yet the beetle was gnawing contentedly away at the remaining portion.

This specimen was immediately caught for the purpose of confining it with other larvæ of the potato beetle and noting its actions.

After removing the beetle, the vine was carefully examined and found to have on its leaves two clusters of *D. 10-lineata* eggs; one cluster was wholly destroyed apparently by the *C. bipunctatus*; the other, which was yet in good condition, was preserved and placed with a few larvæ of the same species in a box containing the specimen of *C. bipunctatus*. The contents of the box were carefully watched, with the following results:

No sooner had the beetle carefully inspected its new quarters than it began searching the enclosed leaves. After a careful review of these it first proceeded to the ones containing the eggs. Here it began at once to eat the eggs, and continued until it had eaten or destroyed six; then it crawled away and hid itself beneath some leaves in the corner of the box, where it remained in seclusion for about ten minutes. It then left its hiding place and proceeded to where the larvæ of the *D. 10-lineata* were feeding upon some potato leaves. Here it stopped, surveyed its prey, and then attacked a small larva that was by itself at a short distance from the rest. It ate heartily, notwithstanding the protests of the larva, until about one-half of

the abdominal cavity had been consumed, when it again returned to its hiding place beneath the leaves in the corner of the box, where it remained for probably one-half hour, when it again resumed its work upon the remaining eggs. This time it did not leave the eggs until the whole cluster — eighteen in all — had been destroyed.

On the following day the same beetle was confined with three full-grown larvæ of the *D. 10-lineata* and carefully watched, as the day preceding. This time it made no attempt whatever to attack the larvæ, even though it was carefully watched for about two hours. It was then left in confinement with these three larvæ for two days, but never during this period of time did it attack any of the larvæ. Although a little discouraged, I collected several more specimens of the larvæ, which were exceedingly scarce in the potato patch of one-fourth acre, and confined them, as before, with the beetle. Fortunately this time larvæ of different sizes and ages were collected, and this explained the mystery of the preceding days. The beetle, as before, carefully inspected its new quarters and then reviewed its prey. After this it attacked some small larvæ that had recently been hatched and, with the exception of their heads, completely devoured the whole bodies.

On August 15 another beetle, *C. bipunctatus*, was confined with three larvæ of *Epilachna corrupta* and carefully watched for about an hour, but it did not attack any of them. In this state the box was set away and was not observed again until the following day, when it was found that one of the large larvæ, then beginning to pupate, was about one-half eaten. Apparently the beetle eats the larvæ of the *E. corrupta* only when forced to do so by hunger, and, when so compelled, it prefers the large larvæ to the small.

Several fields of potatoes in the vicinity of Aztec have been examined this year, and a great many *C. bipunctatus* beetles have been noticed, but there is no apparent damage from the ravages of the *D. 10-lineata*; and in several patches many destroyed eggs and the dried remaining portions of *D. 10-lineata* larvæ could be seen.

In conclusion, we have good reasons to believe that the main

crop of potatoes of this vicinity is annually saved from the *D. 10-lineata* by the predaceous habits of the *C. bipunctatus*, the presence of which, doubtless, is worth many hundreds of dollars to the potato growers of San Juan County, New Mexico, and maybe to those of elsewhere as well.

SAN JUAN SUB-STATION, AZTEC, NEW MEXICO,
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